## Consumers' Attitudes, Preferences, and Perception of Game Meat Consumption in The Republic of Croatia

TIHOMIR FLORIJANČIĆ<sup>1</sup>, NEŠKA VUKŠIĆ KONČEVSKI<sup>2</sup>, IVICA BUDOR<sup>2</sup> <sup>1</sup>Department for Animal Breeding and Biotechnology, Faculty of Agrobiotechnical Sciences Osijek, Josip Juraj Strossmayer University of Osijek, Vladimira Preloga 1, HR-31000 Osijek, CROATIA

#### <sup>2</sup>Croatian Hunting Association, Vladimira Nazora 63, HR-10000 Zagreb, CROATIA

*Abstract:* - The consumption of game meat in Croatia is significantly lower than that of the domestic animals' meat. The paper aims to determine the consumer's attitudes, preferences, and perceptions about the consumption of game meat in Croatia, based on a survey questionnaire. A total of 845 respondents from all over Croatia were surveyed, 715 of whom were hunters. Even though game meat is available to most respondents (67.92%) daily, most of them (40.47%) consume it only occasionally, and only a few of them consume it once a week (7.81%), with the meat products being predominant, most frequently the game meat salami (62.25%). Wild boar meat (33.42%), followed by the rabbit (19.93%), pheasant (16.47%), and roe deer meat (13.56%), is most frequently consumed, while other types of game meat are consumed by a total of less than 7% of respondents. The majority of respondents (78.82%) were aware of the nutritional value of the game meat health. Despite this, the offer on the market is relatively weak, although the price is acceptable. As many as 85.33% of respondents believe that the game meat has poor marketing and a weak representation in the media arena. Based on the aforementioned facts, we may conclude that it is necessary to strengthen the marketing activities, as well as the citizens' awareness of the game meat's nutritional, culinary, and health value, to increase the consumption of the game meat and provide for its better position on the market.

Key-Words: - Game meat, Market, Marketing, Consumers, Preferences, Hunter, Wildlife

Received: March 19, 2024. Revised: August 19, 2024. Accepted: October 4, 2024. Available online: November 11, 2024.

#### **1** Introduction

Croatia is a country with a long hunting tradition. According to the 2021 Census, the Republic of Croatia had 3,871,833 inhabitants, while in the same year, according to the Croatian Hunting Association, there were 64,245 hunters. In other words, there were 60 inhabitants per hunter, and the share of hunters in the total population amounted to 1.66%, which ranks Croatia in the 12th place among 35 European countries, [1]. Under the notion of game, we imply the animal species that live freely in nature, in the areas intended for their breeding and reproduction for the purpose of hunting. Game meat, or venison, represents the meat of the hunted or small game intended for large human consumption. Exceptionally, it can be obtained by slaughtering some types of intensively farmed game, [2], [3]. Game meat belongs to the foods that are consumed in small quantities if we take into consideration its consumption per inhabitant. This is supported by the fact that the annual consumption of game meat in Croatia is only 0.55 kg per household member [4], while, for example, the annual consumption of pork meat in 2016 amounted to 50.6 kg [5], whereas poultry meat was consumed up to the quantity of 24.21 kg [6] and beef meat up to the quantity of 14.1 kg [7] per person.

The aim of the paper is to determine the consumer's attitudes, preferences, and perceptions about the consumption of game meat in Croatia, based on a survey questionnaire.

## 2 Material and Methods

This research, conducted while completing the printed surveys, was designed as a study that

involved 845 adult respondents who live in the entire Republic of Croatia. All participants were informed that the survey was anonymous and voluntary. Each research participant who agreed to participate in the survey was invited to fill out a questionnaire with the information to the best of their knowledge. The first part of the questionnaire related four questions included to the sociodemographic data of the respondents (gender, age, county of residence, and the passage of a hunter's examination). The second part contained 13 questions related to the game-meat consumption. The questions covered the availability, frequency, and concerns with the meat consumption, the choice of game species, the types of processed products consumed, and the acceptability of prices and marketing.

#### **3** Results

The respondents who took part in the research were between 30 and 60 years old (74.32%), and most of them were hunters (84.61%). Only a small number (2.37%) thought that game meat was unavailable to them, and only 3.20% had never consumed it. Despite the fact that game meat was available to most respondents (67.92%) on a daily basis, most of them (40.47%) consumed it only occasionally, and only a few of them consumed it once a week (7.81%) (Figure 1).

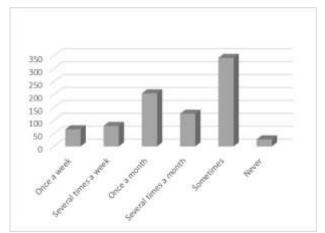


Fig. 1: Frequency of game meat consumption

A majority of respondents (73.49%) consumed game meat products, with most of them tasting salami (62.24%). Also, a majority of respondents (64.14%) were well acquainted with the culinary processing and preparation of game meat. The wildboar meat (33.42%), followed by the brown hare (19.93%), pheasant (16.47%), and roe-deer meat (13.56%), was most frequently consumed, while the other types of game meat were consumed by a total of less than 7% of respondents (Figure 2).

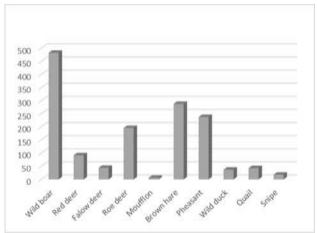


Fig. 2: Type of game preferred for consumption

A majority of respondents (78.82%) were familiar with the nutritional value of game meat, which is better than the meat of domestic animals, and they did not have any fear of the inadequate healthiness of game meat. Despite the fact that the majority of respondents believed that the price of game meat on the market was acceptable (66.27%) and that it should be offered in specialized stores (86.98%), even 85.33% believed that marketing and representation in the media were bad and poor.

## **4** Discusion

Despite the fact that there is a relatively large number of hunters and that there is awareness about nutritional, health, and similar benefits of game meat, its per-inhabitant consumption in Croatia is relatively small. However, Croatia is not an exception, as a similar trend has been recorded in other European countries, including Poland, Great Britain, Czech Republic, Germany, Norway, and Sweden, [8]. In recent years, this consumption in Croatia amounted to 0.55 kg/person/year [4], and in some other European countries, the consumption ranged from 0.2 to 1.1 kg/person/year, [8], [9], [10], [11], [12], [13], [14], [15], [16]. The largest percentage of respondents (40.47%) consumed game meat sometimes, which is not an exception to the rule in Croatia since other authors have obtained similar results, [17], [18]. Those who consume meat more often belong to the group of hunters and those close to them. In our survey, it is interesting that the majority of respondents (64.14%) stated that they were well acquainted with the culinary processing and preparation of game meat, although, for example, game meat is perceived as complicated

time-consuming to and prepare, requiring knowledge of its specificity [8], [17], [19], according to the opinion of many Polish consumers. When we talk about the type of animals whose meat is most often consumed, Croatian respondents mostly prefer wild boar meat, which is an opinion similar to that of the consumers in Spain [19], while in Hungary the large-game consumers mostly consume roe-deer meat, [20]. In our research, a majority of respondents were aware that the nutritional value of game meat is better than that of the meat of domestic animals, and they were not afraid of the inadequate healthiness of game meat; on the contrary, they even thought that the price of game meat on the market was acceptable, but a vast majority (85.33%) believed that it was a matter of bad marketing and weak representation in the media space.

## **5** Conclusion

Based on the aforementioned facts, we may conclude that it is necessary to strengthen the marketing activities, as well as the citizens' awareness about game meat's nutritional, culinary, and health value, in order to increase the game-meat consumption and provide for better position on the market.

References:

- [1] Deutscher Jagdverband, Jäger in Europa 2023, [Online]. <u>https://www.jagdverband.de/sites/default/files</u> /2024-02/2024-01\_Infografik\_Jaeger\_Europa\_2023.jpg (Accessed Date: June 15, 2024).
- [2] Živković J., Meat hygiene and technology, Part I. Veterinary-sanitary supervision of animals for slaughter and meat. Orbis, Zagreb, 2001.
- [3] Kujawski O. E. J., *Game meat*. Stanek d.o.o., Varaždin, 2008.
- [4] Tolušić Z., Florijančić T., Kralik I., Sesar M., and Tolušić M., Game meat market in Eastern Croatia, *Poljoprivreda*, Vol.12, No.2, 2006, pp. 58-63.
- [5] Kranjac D., Zmaić K., and Erjavec E., Outlook and Perspective of Croatian Pork Meat Market - Partial Equilibrium Model Simulation, *Agroekonomia Croatica*, Vol.8, No.1, 2018, pp. 75-83.
- [6] Kranjac D., Zmaić K., Crnčan A., and Zrakić M., Outlook on EU and Croatian poultry meat market - Partial equilibrium model approach,

*World's Poultry Science Journal*, Vol.75, No.1, 2019, pp. 93-103. https://doi.org/10.1017/S0043933918000910.

- [7] Kranjac D., Zmaić K., Štefanić I., Jelić Milković S., Raguž N., and Erjavec E., Simulation of main agrarian policy indicators within beef meat market in the Republic of Croatia by agmemod partial equilibrium model, *Poljoprivreda*, Vol.25, No.2, 2019, pp. 45-51.
- [8] Czarniecka-Skubina E., Stasiak D. M., Latoch A., Owczarek T., and Hamulka J., Consumers' Perception and Preference for the Consumption of Wild Game Meat among Adults in Poland, *Foods*, Vol.11, No.6, 2022, pp. 830. DOI: 10.3390/foods11060830.
- [9] Ivanović S., Pisinov B., Pavlović M., and Pavlović I., Quality of meat from female fallow deer (*Dama dama*) and roe deer (*Capreolus capreolus*) hunted in Serbia. *Annals of Animal Science*, Vol.20, No.1, 2020, pp. 245–262. https://doi.org/10.2478/aoas-2019-0064.
- [10] Morales J.S., Moreno-Ortega A., Amaro Lopez M.A., Arenas Casas A., Cámara-Martos F., and Moreno-Rojas R., Game meat consumption by hunters and their relatives: A probabilistic approach. *Food Additives & Contaminants: Part A*, Vol. 35, No.9, 2018, pp. 1739–1748. https://doi.org/10.1080/19440049.2018.14881 83.
- [11] Thomas V.G., Pain D.J., Kanstrup N., and Green R.E., Setting maximum levels for lead in game meat in EC regulations: An adjunct to replacement of lead ammunition, *Ambio*, Vol.49, 2020, pp. 2026–2037. <u>https://doi.org/10.1007/s13280-020-01336-6</u>.
- [12] Andreotti A., Borghesi F., and Aradis A., Lead ammunition residues in the meat of hunted woodcock: A potential health risk to consumers. *Italian Journal of Animal Science*, Vol.15, No.1, 2016, pp. 22–29. <u>https://doi.org/10.1080/1828051X.2016.11423</u> <u>60</u>.
- [13] Marescotti M.E., Demartini E., Gibbert M., Viganò R., and Gaviglio A., Disentangling individual phases in the hunted vs. farmed meat supply chain: Exploring hunters' perceptions in Italy. *Foods*, Vol.10, No.1, 2021, p. 174.
- [14] European Food Safety Authority (EFSA). Opinion of the Scientific Panel on Dietetic Products, Nutrition and Allergies on a request from the Commission relating to the

evaluation of allergenic foods for labelling purposes. *EFSA Journal*, Vol.2, No.3, 2004, p. 32. DOI: 10.3390/foods10010174

- [15] NVS-Nationale Verzehrsstudie II, Die **Bundesweite** Erhebung zur Ernährungssituation von Jugendlichen und Erwachsenen. Max Rubner-Institut, Bundesforschungsinstitut fur Erahrung und Lebensmittel [Online]. (Hrsg.), https://www.mri.bund.de/fileadmin/MRI/Instit ute/EV/NVS II Abschlussbericht Teil 1 mit Ergaenzungsbericht.pdf (Accessed Date: May 30, 2024).
- [16] Niewiadomska K., Kosicka-Gebska M., Gebski J., Gutkowska K., Jezewska-Zychowicz, M., and Sułek M., Game Meat Consumption—Conscious Choice or Just a Game? *Foods*, Vol. 9, No.10, 2020, p.1357. <u>https://doi.org/10.3390/foods9101357</u>.
- [17] Kwiecinska K., Kosicka-Gebska M., and Gebski J., Evaluation of Consumers' Preferences Related to the Choice of Game Meat, *Handel Wewnetrzny*, Vol.306, No.1, 2016, pp. 53–64.
- [18] Kwiecinska K., Kosicka-Gebska M., Gebski J., and Gutkowska K, Prediction of the conditions for the consumption of game by Polish consumers, Meat Science, Vol.131, 2017, pp. 28–33. https://doi.org/10.1016/j.meatsci.2017.04.038.
- [19] Lizana V., Muniesa A., Cardells J., López-Ramon J., Aguiló-Gisbert J., Lomillos J.M., and Gortázar C., Safe Game: Hygienic Habits in Self-Consumption of Game Meat in Eastern Spain, *Foods*, Vol. 11, No.3, 2022, p. 368. <u>https://doi.org/10.3390/foods11030368</u>.
- [20] Bodnar K., Benak A., and Bodnarne-Skobrak E., Analyses of consumer preferences and attitudes on hungarian game meat market (Preliminary report), *Lucrări Științifice*, Vol.53, No.1, seria Agronomie, 2010, pp. 9-12.

#### Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)

The authors equally contributed in the present research, at all stages from the formulation of the problem to the final findings and solution.

#### Sources of Funding for Research Presented in a Scientific Article or Scientific Article Itself

No funding was received for conducting this study.

#### **Conflict of Interest**

The authors have no conflicts of interest to declare.

# Creative Commons Attribution License 4.0 (Attribution 4.0 International, CC BY 4.0)

This article is published under the terms of the Creative Commons Attribution License 4.0

https://creativecommons.org/licenses/by/4.0/deed.en US